

OWNER'S MANUAL

CP-1000 POOL OR SPA CONTROL SYSTEM

IMPORTANT SAFETY INSTRUCTIONS

Basic safety precautions should always be followed when operating and servicing this electrical equipment, and when using the spa.

READ AND FOLLOW ALL INSTRUCTIONS.

Prolonged immersion in hot water may induce hyperthermia.

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6° F.

The symptoms of hyperthermia include dizziness, fainting, drowsiness, lethargy, and an increase in the internal temperature of the body.

The effects of hyperthermia include: 1) unawareness of impending hazard; 2) failure to perceive heat; 3) failure to recognize the need to exit the spa; 4) physical inability to exit the spa; 5) fetal damage in pregnant women; and 6) unconsciousness, resulting in a danger of drowning.

WARNING: The use of alcohol, drugs or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

The water in a spa or hot tub should never exceed 104° F.

Water temperatures between 100° F. and 104° F. are considered safe for a healthy adult. Lower temperatures are recommended for extended use (exceeding 15 minutes) and for young children.

Before entering the spa, the user should always check the water temperature with an accurate thermometer.

Since excessive water temperatures have a high potential for fetal damage during the early months of pregnancy, pregnant or possibly-pregnant women should limit spa water temperatures to 100° F.

The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.

Persons suffering from obesity or with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using the spa.

Persons using medication should also consult a physician before using the spa, since some medications may induce drowsiness or affect heart rate, blood pressure or circulation.

Before using this electrical equipment, obtain a copy of the Installation Instructions and a completed EQUIPMENT CHECKLIST from the Pool Builder, Electrician, or Start-up Person.

SAVE THESE INSTRUCTIONS



ONE YEAR LIMITED WARRANTY

Compool Corporation warrants to the purchaser of this electronic control system, for the period of one year from the date of original purchase for use, that any defective product proved to be caused by faulty workmanship or faulty material, will be repaired or replaced at Compool's option for no charge, providing the product is returned to Compool with all transportation charges prepaid.

This warranty covers the **CP-1000 Controller**, **LX-1000 Power Center**, optional **VOR-24 Valve Operators**, and optional **Remote Controls** including all components and parts. It does not include freeze sensors, light bulbs, batteries, or labor for calibration. It extends to the first retail purchaser and any subsequent owners of the system.

This limited warranty applies only to controls which have been installed and maintained in strict accordance with installation and operating instructions provided by Compool Corporation, using installation hardware supplied and/or recommended in writing by Compool, and to controls which have been connected to the correct supply voltage.

This limited warranty does not apply to any controls which have been repaired or altered by anyone other than Compool or a person authorized by it; or which have been subject to misuse, neglect or accident; or which have been damaged by wind, rain, lightning, freezing or other cause, thing, person, or act of God; or which have been subject to damage in transit, during installation, or by someone other than Compool Corporation; or which have been damaged because of a defect in a component or part which is not part of the Compool Control System; or upon which the serial number or manufacture date has been altered, effaced or removed.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. Compool Corporation does not authorize any person to create any other obligation or liability in connection with Compool controls. Compool Corporation makes no warranty of merchantability or fitness for any use. Any implied warranty applicable to Compool controls is limited in duration to the duration of this written warranty.

Unless state law provides otherwise, Compool Corporation shall not be liable for consequential or incidental damages resulting from breach of this written warranty or any implied warranty, or for any inconvenience, loss of time, or incidental expenses such as telephone calls.

Compool Corporation shall not be liable for any labor charges associated with the removal or reinstallation of any so-claimed defective products.

For information on possible Authorized Service Centers within your vicinity, call Compool Corporation at (415) 964-2201 or outside California at (800) 458-2201.

To exercise this warranty, send defective unit, with copy of dated receipt and a brief description of the problems encountered, postage prepaid, to:

**COMPOOL CORPORATION
599 Fairchild Drive, Mountain View, California 94043**

INTRODUCTION

The **CP-1000** is an electronic control system which is designed to coordinate and operate all of the equipment associated with your spa or swimming pool.

The system is comprised of two principal components: the **CP-1000 CONTROLLER** which is located inside your house, and the **LX-1000 POWER CENTER** which is located at the pool equipment pad.

The Controller automatically controls and monitors water temperature and the timing of all the pool equipment.

The Power Center provides easy maintenance for your Pool Serviceperson.

Additionally, the **CP-1000** incorporates important safety features which protect your pool equipment from accidental damage.

Your system may also include additional Remote Controls, solar heating, and special options which further add to the convenience, safety, and economy of operating your spa or swimming pool.

SAFETY FEATURES

HEATER PROTECTION:

A built-in electronic delay circuit automatically runs the filter pump for an additional four minutes whenever the system is turned off. This feature enables the heater to cool down, so that the heat exchanger and plumbing are not damaged from overheating.

For testing and servicing purposes, it is possible to override this delay circuit by pushing the DELAY CANCEL Button at the CP-1000 Controller.

POOL CLEANER PROTECTION:

If your system incorporates a pool cleaner pump, it will have been plumbed downstream of the filter pump.

This arrangement requires that the filter pump be running whenever the pool cleaner is on.

The CP-1000 incorporates the following protection features against possible pump damage if there is no water circulation:

1. The filter pump will automatically be activated whenever the pool cleaner is running, even if the filter has not been switched on.
2. Additionally, whenever the pool cleaner is turned on, a built-in electronic delay circuit will prevent it from running until 4 minutes have passed. This prevents the pump from possible damage caused by air which may have entered the plumbing since the system was last used.

For testing and servicing purposes, it is possible to override this delay circuit by pushing the DELAY CANCEL Button at the CP-1000 Controller.

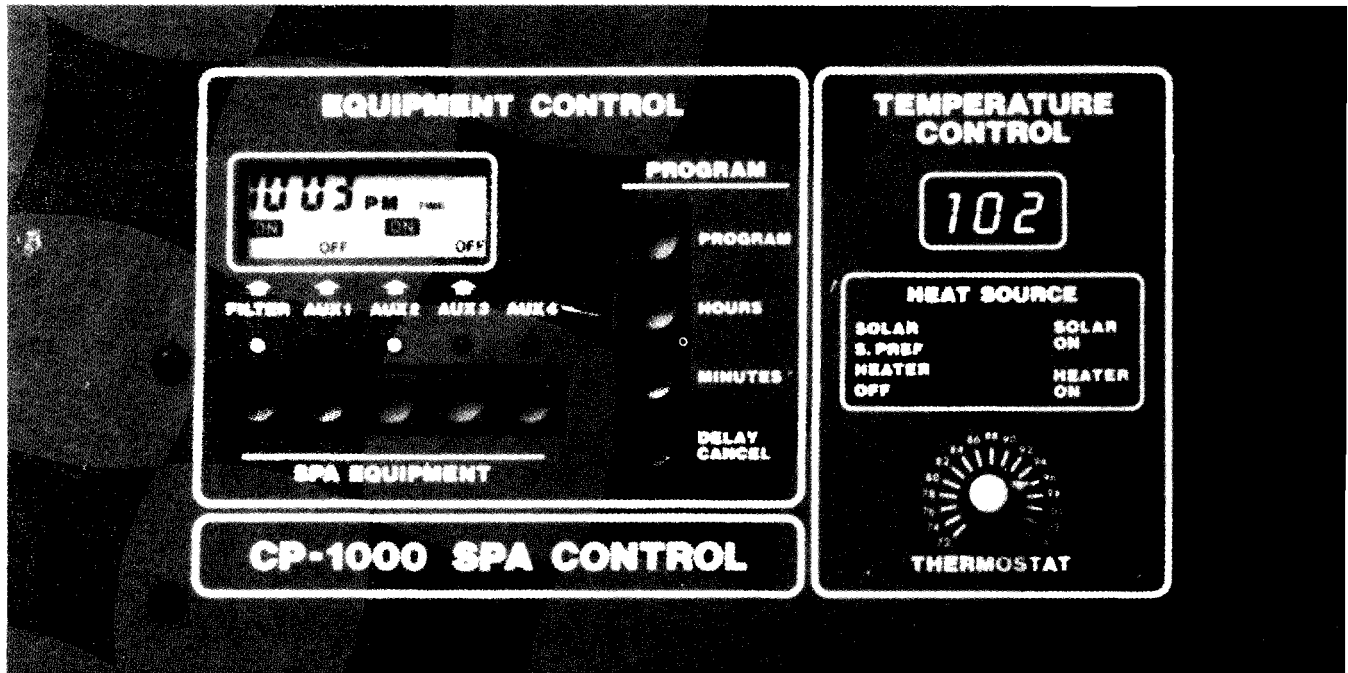
3. If your system incorporates solar, the pool cleaner will automatically be disabled for a period of 4 minutes whenever the solar system turns on. This protects the pool cleaner from possible damage caused by residual air within the solar panels.

BATTERY BACK-UP:

In case of a power failure, a long-life battery automatically maintains the program and clock functions of your Control System. This safeguards against the equipment operating erratically, once power has been restored, and also eliminates the need to reprogram whenever there is a power failure.

CONTROLLER

Installed in a convenient location inside your house, the **CP-1000 CONTROLLER** gives you fingertip control of all the equipment associated with your swimming pool or spa.



EQUIPMENT CONTROL:

The Controller houses a 24 hour Clock with a digital display, which is used to program daily filtration cycles and auxiliary equipment (such as pumps and lights).

There are five **Equipment Buttons** which are used for switching the pool equipment ON or OFF:

FILTER Button: Activates filter pump, and circulates water through the filtration and heating system.
Enables water to be heated.

AUX 1 Button: Activates auxiliary 1 equipment (such as spa light or pool cleaner).
Note: If pool cleaner is used, it will be delayed for 4 minutes whenever it is activated, and it will also automatically activate the filter pump (even if FILTER Button is not switched ON).
See "POOL CLEANER PROTECTION" (Page 3).

AUX 2 Button: Activates auxiliary 2 equipment (such as a fountain),

AUX 3 Button: Optional. Activates auxiliary 3 equipment (such as jet pump or waterfall).

AUX 4 Button: Optional. Activates auxiliary 4 equipment (such as landscape lights).
Note: The daily operation of this equipment cannot be programmed.

The **PROGRAM, HOURS** and **MINUTES Buttons** are used for setting the Clock, and for programming the daily operation of the FILTER, AUX 1, AUX 2, and AUX 3. **See Page 6.**

The **DELAY CANCEL Button** is used to override the "Pool Filter Pump Off Delay" and optional "Pool Cleaner On Delay" circuits (for testing and servicing purposes only).

Status Lights are provided for the various pieces of equipment controlled by the CP-1000.

The presence of a light indicates that the equipment has been activated. The absence of a light indicates that the equipment is turned off.

TEMPERATURE CONTROL:

HEAT SOURCE Switch:

It is possible to heat you spa or swimming pool using solar energy, conventional heat, or a combination of both. However, no heating will take place unless the filter pump is running:

SOLAR Position: Allows heating with solar only.

S.PREF Position: Allows preferential heating with solar, but automatically switches to conventional heating when solar energy is unavailable.

HEATER Position: Allows heating with gas or electric heater only.
Note: If you are heating a swimming pool, your Pool Builder may have modified the Controller so that the solar system will also contribute to the conventional heat whenever solar energy is available.

OFF Position: Allows no heating.

SOLAR ON Light: Indicates whenever solar system is on.

HEATER ON Light: Indicates whenever gas or electric heater is on.

THERMOSTAT Dial:

Used to preset your desired water temperature.

As long as **HEAT SOURCE Switch** is not in the "OFF" position, the water will heat up to the preset temperature whenever the filter pump is running.

Temperature Display:

Whenever the filter pump is running, the precise water temperature will be displayed in degrees Fahrenheit.

Note: Filter pump must be running in order to provide accurate temperature display.

EQUIPMENT CONTROL

TIME MODE:

In **Time Mode** (normal operation), the Clock will display the actual time of day, and "**TIME**" will appear on the right of the Display.

It is possible to manually activate the pool equipment while Clock is in **Time Mode**, by simply pushing the appropriate **Equipment Button**. This will temporarily override any preset program which may be in effect.

PROGRAM MODE:

In order to preselect daily equipment operation, the Clock must be switched to **Program Mode**.

To achieve this, push **PROGRAM Button** once. Whenever Clock is in **Program Mode**, "**PROG**" will appear on the right of the Display.

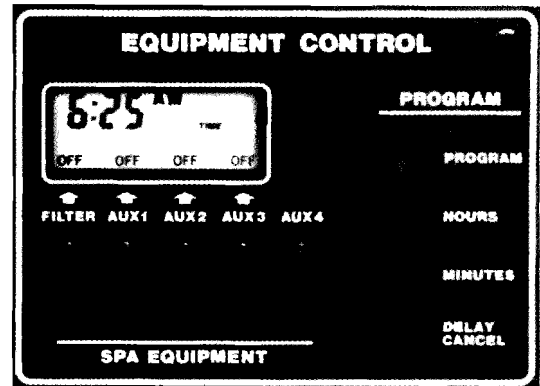
After programming is complete, the Clock will automatically return to Time Mode.

SETTING THE CLOCK

If the Clock is not already in **Time Mode**, push **PROGRAM Button** until "**TIME**" appears on the right of the Display. This indicates that the Clock is now in **Time Mode**.

Push the **HOURS** and **MINUTES Buttons** until the correct time of day is displayed.

Pay special attention to the AM/PM indicator.



PROGRAMMING

It is possible to preset six programs during a 24 hour period.

Each of the six programs can be used for turning equipment ON or OFF.

More than one piece of equipment can be turned ON or OFF at each program. However, to turn the same piece of equipment ON and OFF requires two programs. It is therefore advisable to overlap programs.

Once the programming is complete, the equipment will operate at the same times every day.

Before commencing programming, it is advisable to determine 1) what equipment you wish to control, 2) at what time you would like the equipment to turn on, and 3) for how long you would like each piece of equipment to run.

To better understand the programming sequence, let's follow a sample program, step by step.

In our example, the Control System is being used for a spa, and we would like to activate the following equipment:

Turn AUX 2 (fountain) on from 11:00 am until 6:00 pm.

Filter (and heat) the spa from 6:00 pm until 7:00 pm.

Turn AUX 3 (jet pump) on from 6:30 pm until 7:00 pm.

Turn AUX 1 (spa light) on from 8:30 pm until 10:00 pm.

To begin programming, push **PROGRAM BUTTON** once.

"**PROG 1**" will appear on the right of the Display. This indicates that the Clock is in **Program Mode**, and that the first program is ready to be entered.

Enter the first program time (11:00 am in our example) by pushing the **HOURS** and **MINUTES** Buttons.

In Program Mode, minutes are advanced in ten minute increments.

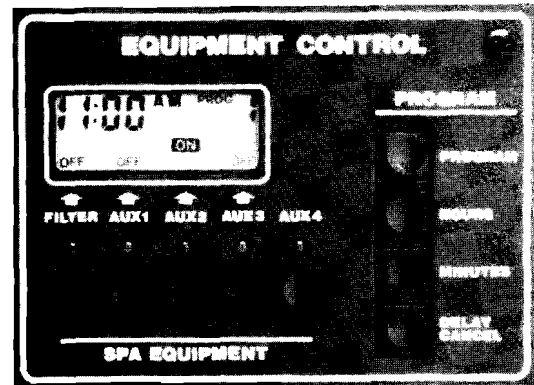
Push **AUX 2 Equipment Button**.

"**ON**" should appear directly above **AUX 2 Button**.

If "**ON**" is displayed above any of the other **Equipment Buttons**, push appropriate Button once, and "**OFF**" will appear.

You have now completed the first program.

To lock-in the program, simply push the **PROGRAM Button** once.



"**PROG 2**" will now appear on the right of the Display. This indicates that the second program is ready to be entered.

Enter the second program time (6:00 pm) by pushing the **HOURS** and **MINUTES** Buttons.

Pay special attention to the AM/PM indicator.

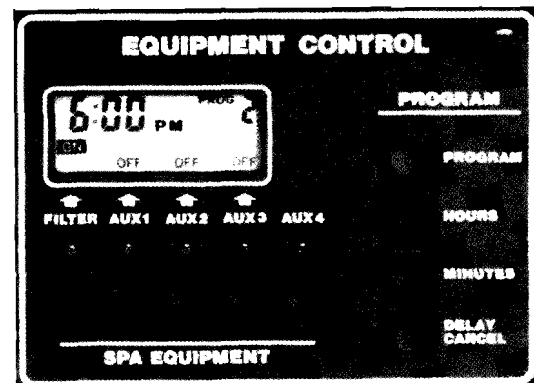
In our example, we would like to turn off the fountain (AUX 2) and turn on the spa filter pump (FILTER) at 6:00 pm.

Push **FILTER Equipment Button**.

"**ON**" should appear directly above **FILTER Button**.

Make sure that "**OFF**" is displayed above **AUX 1, AUX 2 and AUX 3 Equipment Buttons**.

Push **PROGRAM Button** to lock-in the program.



"**PROG 3**" will now appear on the right of the Display. This indicates that the third program is ready to be entered. Enter the third program time (6:30 pm) by pushing the **HOURS** and **MINUTES** Buttons.

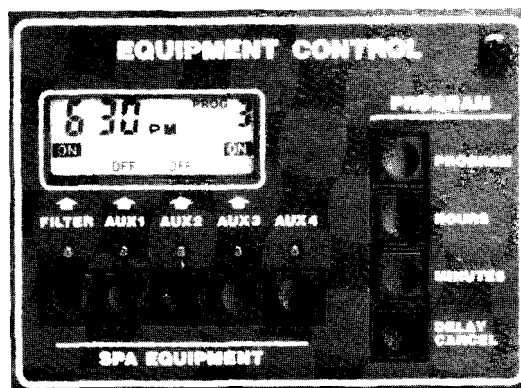
In our example, we would like to turn on the jet pump (AUX 3) at 6:30 pm, but the filter pump should also still be running.

Therefore, push **FILTER** and **AUX 3 Equipment Buttons**.

"**ON**" will appear above each button.

This is an example of overlapping programs.

Push **PROGRAM** Button to lock-in the program.

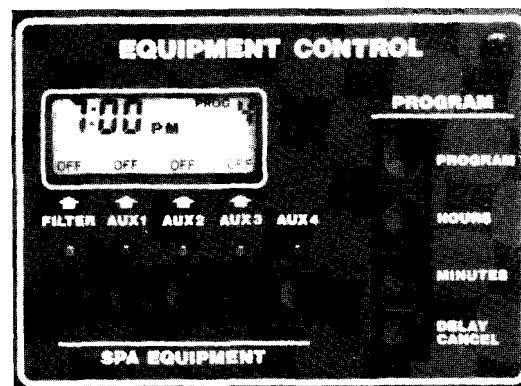


"**PROG 4**" will now appear on the right of the Display. This indicates that the fourth program is ready to be entered. Enter the fourth program time (7:00 pm) by pushing the **HOURS** and **MINUTES** Buttons.

In our example, at 7:00 pm the filter pump (FILTER) and jet pump (AUX 3) should turn off.

Make sure that "**OFF**" is displayed above each **Equipment Button**.

Push **PROGRAM** Button to lock-in the program.



"**PROG 5**" will now appear on the right of the Display. This indicates that the fifth program is ready to be entered. Enter the fifth program time (8:30 pm) by pushing the **HOURS** and **MINUTES** Buttons.

In our example, the spa light (AUX 1) should turn on at 8:30 pm.

Push **AUX 1 Equipment Button**.

"**ON**" should appear directly above AUX 1 Button.

Push **PROGRAM** Button to lock in the program.



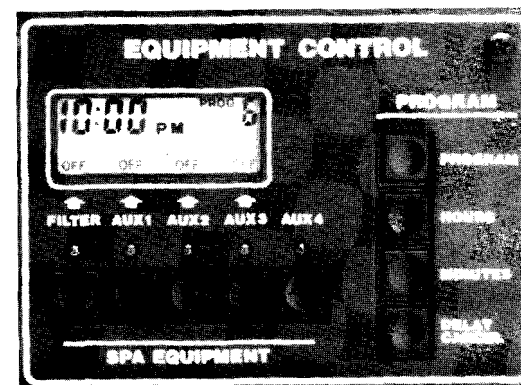
"**PROG 6**" will now appear on the right of the Display. This indicates that the sixth program is ready to be entered. Enter the sixth program time (10:00 pm) by pushing the **HOURS** and **MINUTES** Buttons.

In our example, all of the equipment should be turned off at 10:00 pm.

Therefore, make sure that "**OFF**" is displayed above all of the **Equipment Buttons**.

To lock-in the program and return Clock to **Time Mode**, simply push the **PROGRAM** Button once.

If this is forgotten, the Clock will automatically return to Time Mode after two minutes.



UNUSED PROGRAMS:

Our sample program utilizes all six programs. However your personal program may only require that you use three or four of the available programs. In this event, we recommend that you disable all unused programs.

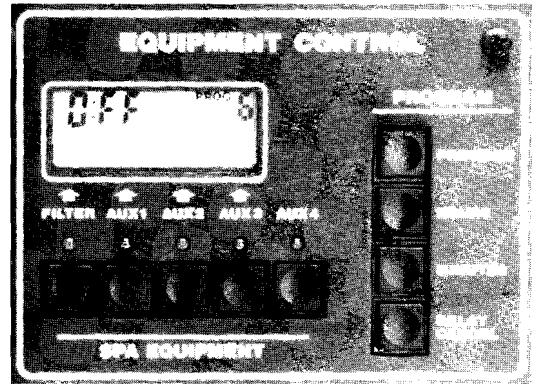
To accomplish this, push **PROGRAM Button** until unused program is displayed.

Push and hold down **HOURS** and **MINUTES Buttons** at the same time, and then release simultaneously.

"OFF" will appear on the Display.

To reactivate any disabled program, simply push the **HOURS Button** once.

"OFF" will disappear, and the Clock can then be programmed.



REVIEWING PROGRAM:

After programming is complete, it is possible to rapidly advance the Clock through a 24 hour period in order to review your program.

Make sure that Clock is in **Time Mode**.

Push and hold down **HOURS** and **MINUTES Buttons** at the same time, and then release simultaneously.

The Clock will rapidly advance through your program, step by step. The appropriate **Status Lights** will turn ON and OFF as each program is activated.

When the review is complete, the Clock will automatically return to the correct time of day and will also return all equipment to its previous status.

DELAY CANCEL:

For testing and trouble-shooting purposes, occasionally it may be necessary to temporarily override the built-in "Filter Pump Off Delay" circuit or "Pool Cleaner On Delay" circuit (if applicable).

To do this, simply push the **DELAY CANCEL Button**.

The Delay will automatically reoccur the next time the filter pump turns off (or the pool cleaner turns on).

CUSTOM CLOCK OPTIONS

The standard CP-1000 Controller is provided with six programs plus the "Filter Pump Off" safety delay. Your Pool Builder may, however, have incorporated one or more of the following custom features:

PROGRAM LOCK:

To safeguard against someone accidentally pushing the **PROGRAM Button** and inadvertently tampering with your daily program, your Pool Builder may have included a Program Lock feature.

In this instance, you will need to push the **PROGRAM Button** quickly twice in order to put the Clock into **Program Mode**.

SINGLE OCCURRENCE PROGRAM:

Occasionally, you may wish to use your spa (or other equipment) at a time which is different from your normal daily program. In this instance, it is possible to enter a "**once only**" program step, which will occur within the following 24 hour period without having to reprogram the daily equipment sequence.

The "once only" program will automatically be canceled once the Clock reaches its next program step.

Push **PROGRAM Button** to put Clock into **Program Mode**.

"**PROG**" will appear on the right of the Display. Continue to push **PROGRAM Button** until a **flashing "ONCE"** appears.

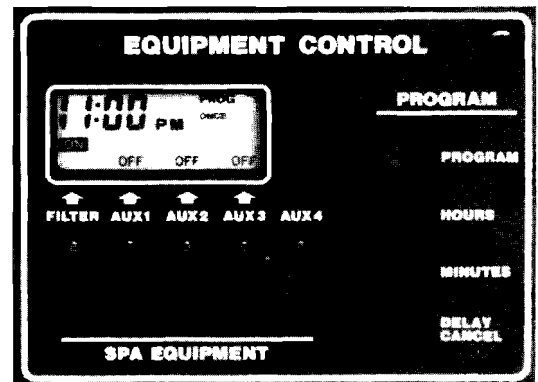
Enter the time that you wish to activate the spa (11:00 pm in our example) by pushing the **HOURS** and **MINUTES Buttons**.

Push **FILTER Equipment Button**.

"**ON**" will appear directly above **FILTER Button**.

Push **PROGRAM Button** to lock-in the program.

Remember to manually turn the equipment off after use, otherwise it may run all night until the Clock reaches its next program step.



COUNTDOWN TIMER:

This feature enables you to preset the operating time of any piece of equipment.

Whenever that equipment is turned on (either from the CP-1000 or an optional Remote Control), it will run for a predetermined length of time and then automatically switch off.

The countdown duration can range from a minimum of 10 minutes to a maximum of 11 hours and 50 minutes (in ten minute increments).

To better understand this feature, let us look at a typical application:

For example, we are using **AUX 3** to activate the jet pump, and we would like the jets to run for a period of 30 minutes whenever they are activated.

Push **PROGRAM Button** to put Clock into **Program Mode**.

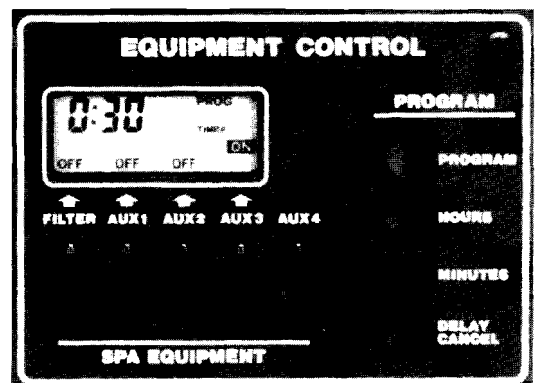
"**PROG**" will appear on the right of the Display. Continue to push **PROGRAM Button** until a **flashing "TIMER"** appears.

Enter the desired countdown duration (30 minutes in our example) by pushing the **HOURS** and **MINUTES Buttons**.

Push appropriate **Equipment Button (AUX 3 in our example)**.

"**ON**" will appear directly above Equipment Button.

Push **PROGRAM Button** to lock-in the program.



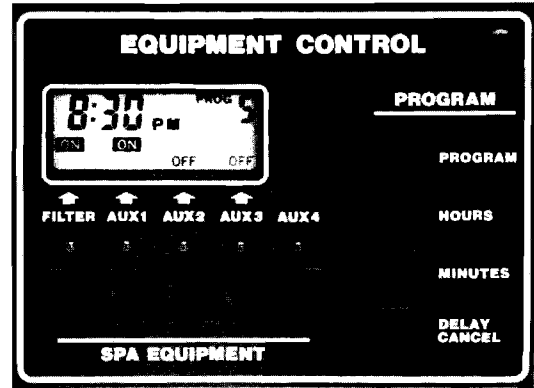
POOL CLEANER CONTROL:

If your system incorporates a pool cleaner, **AUX 1 Equipment Button** will be used for this function.

Whenever the pool cleaner (AUX 1) is switched on, the filter pump will also be automatically activated, even if the **FILTER Equipment Button** has not been switched "ON".

Additionally, a built-in electronic delay circuit will prevent the pool cleaner from running until 4 minutes have passed.

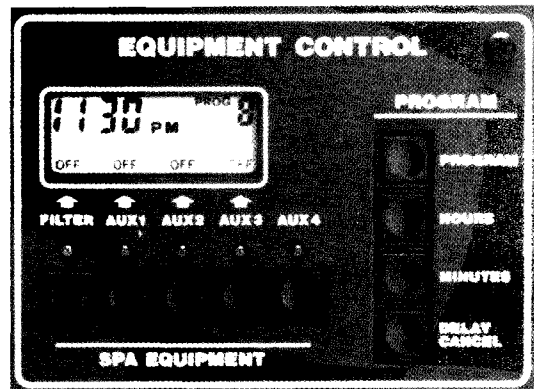
See **POOL CLEANER PROTECTION"** (Page 2).



EIGHT PROGRAMS:

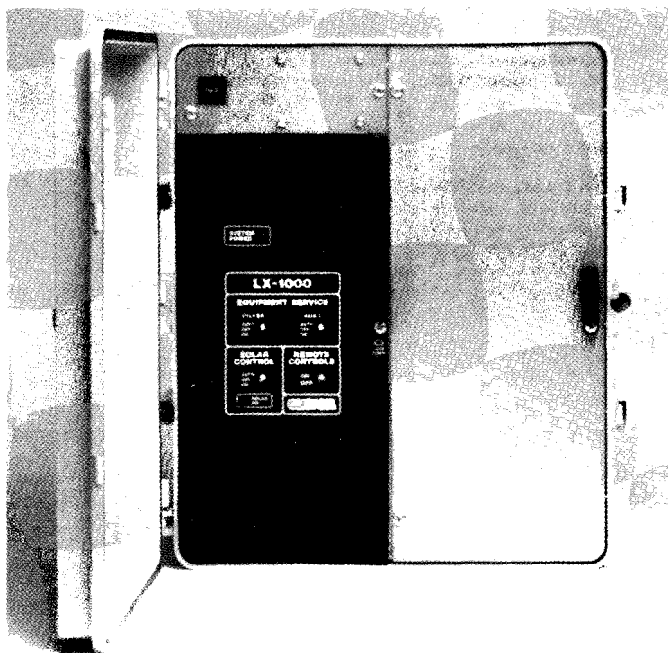
If the standard six programs are insufficient for your particular programming requirements, it is possible to modify the Clock so that eight programs may be entered.

Consult the **Installation Manual**.



POWER CENTER

Located in close proximity to your pumping equipment, the **LX-1000 POWER CENTER** provides your Pool Serviceperson with manual control of the system without having to gain access to the CP-1000 Controller.



SYSTEM POWER:

A **Status Light** is provided to indicate that power has been connected to the system. If this light is not on, consult your Pool Serviceperson.

EQUIPMENT SERVICE:

FILTER and **AUX 1 Service Switches** should be kept in the "AUTO" position for normal system operation. The "OFF" and "ON" positions will disable the CP-1000 Controller and provide manual-override capability for service purposes.

Note: If a two-speed filter pump is being used, the pump will automatically run in high speed whenever the FILTER Service Switch is turned to the "ON" position.

Always return Service Switches to the "AUTO" position after the equipment has been serviced.

SOLAR CONTROL:

This **Service Switch** should also be kept in the "AUTO" position for normal system operation.

The "OFF" and "ON" positions provide manual override of your solar system, and should be used only for servicing and testing purposes.

To circulate water through the solar panels, the filter pump must be running.

The **SOLAR ON Light** will indicate whenever the solar system is operating.

REMOTE CONTROLS:

This **Service Switch** should be kept in the "ON" position for normal system operation.

The "OFF" position will disable any optional Remote Controls which may have been added to your system.

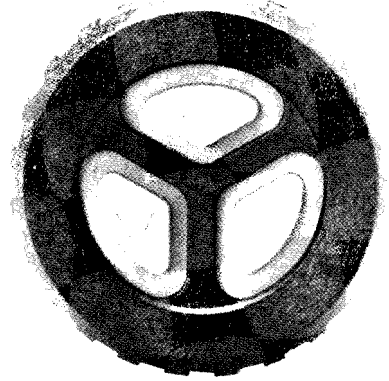
This feature is particularly convenient if your system includes a Spa-side Remote Control, and you wish to prevent the unauthorized use of your spa while you are away from home.

REMOTE CONTROLS

SPA-SIDE REMOTE:

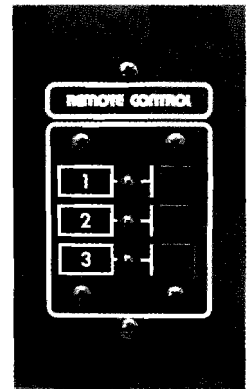
One or more 3-function waterproof Remote Controls (called **SUPERSWITCH**) may be located at your spa. This will enable you to override the CP-1000 Controller, and activate your spa equipment from the convenience of the spa. It is possible to control the following equipment from the Superswitch:

1. **FILTER.** Activates filter pump and enables spa heater.
(Overrides FILTER Equipment Button at CP-1000).
2. **HEAT BOOST.** Overrides the thermostat, and activates the heater for a 5 minute period.
If the filter pump is not running, this button will be inactive.
3. **AUX 1.** Activates auxiliary equipment such as spa light.
(Overrides AUX 1 Equipment Button at CP-1000).
4. **AUX 2.** Activates auxiliary equipment such as a fountain.
(Overrides AUX 2 Equipment Button at CP-1000).
5. **AUX 3.** Activates auxiliary equipment such as jet pump or waterfall.
(Overrides AUX 3 Equipment Button at CP-1000).
6. **AUX 4.** Activates auxiliary equipment such as landscape lights.
(Overrides AUX 4 Equipment Button at CP-1000).
7. **AUX 5.** Activates auxiliary equipment such as an air blower.
AUX 5 cannot be controlled from the CP-1000.
8. **AUX 6.** Activates auxiliary equipment such as an additional jet pump.
AUX 6 cannot be controlled from the CP-1000, and requires the addition of an optional Expansion Module (model MOD-BOOST).

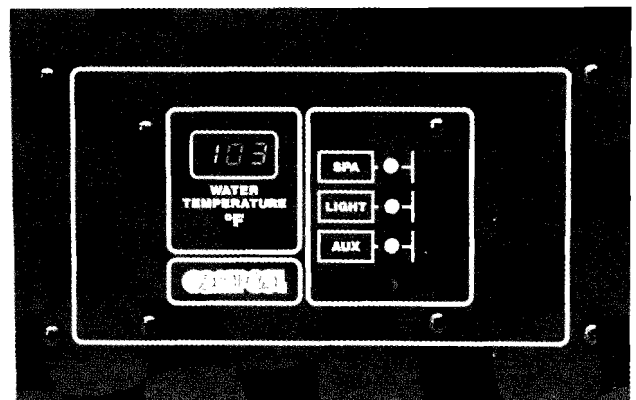


INDOOR REMOTES:

Your system may include a three-function indoor Remote Control (model **LVS-3**), which enables you to control the equipment from a convenient indoor location.



A three-function Indoor Remote with Digital Temperature Display (model **LVS-3TR**) is also available. This additionally enables you to monitor water temperature from the convenience of your home.



SYSTEM OPTIONS

VALVE OPERATORS:

Your control system is designed to activate an optional motorized solar valve (**model VOR-24**), which automatically diverts the flow of water through your solar panels whenever solar energy is available.

Your system may also include additional motorized valves for custom hydraulic applications, such as a fountain or waterfall, or (in lieu of a booster pump) for your pool cleaner.

TWO SPEED PUMP CONTROL:

If your system incorporates a two speed filter pump, the CP-1000 has been designed to provide you with the maximum energy-efficient usage of this feature.

Although your Pool Builder may have adjusted the two speed control circuitry to your specific requirements, the CP-1000 will typically run the filter pump at low speed during normal operation, but automatically switch the pump to high speed under any of the following conditions:

1. **For four minutes when the filter pump is first turned on.** This feature establishes proper flow through the system, and packs the filter grids. After four minutes, the pump will automatically switch to low speed.
2. **Whenever your solar system is operating.** This provides high flow rate through your solar panels which ensures the most efficient usage of the available solar energy.
3. **Whenever auxiliary 1 is running.**
If AUX 1 is used for a pool cleaner, this provides sufficient flow for the pool cleaner to operate effectively.
If AUX 1 is used for a jet pump, this will provide additional jet action during spa use.
4. **Whenever the heater is on.** This feature will conserve energy by bringing the water up to the desired temperature more quickly.

FREEZE PROTECTION:

A recirculating freeze sensor (**model FPS-C**) may have been added to your control system. It protects the plumbing and equipment from possible freeze damage by running the filter pump whenever the temperature falls to approximately 41° F.

Similarly, an auxiliary pump freeze sensor (**model FPS-AUX**) may be added to activate auxiliary equipment (such as a fountain or jet pump) during potential freezing conditions.

CAUTION: Freeze sensors will not provide circulation of water through your solar panels. Solar freeze protection must be accomplished by draining the panels. (See below).

SOLAR PANEL DRAINDOWN:

If your control system incorporates solar heating, it is advisable that a draindown feature be added to protect against possible freeze damage.

For conventional solar systems which permit gravity drainage of panels, a panel drain-down kit (**model PDD-K**) may be added. This will enable your solar panels to automatically drain whenever the filter pump is not running.

For solar systems with glazed panels, damage can occur from overheating if the solar turns off and the filter pump is still running. In this instance, a draindown valve (**model HW-5B**) should be plumbed at the solar feed line. This will automatically drain your solar panels whenever the solar is turned off, even if the filter pump is still running.

This feature may also be incorporated if your solar system does not facilitate gravity drainage of panels, or where panels are located below pool water level.

Consult your Solar Company for more details.

MAINTENANCE

SERVICING THE VALVES:

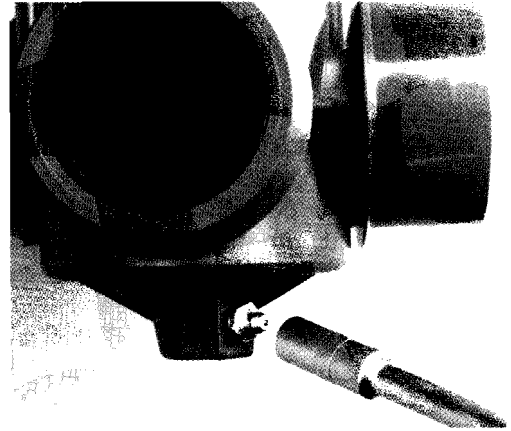
If your system has been plumbed with the Compool Pro Valve, maintenance is a simple operation which can be performed by either yourself or your Pool Serviceperson.

1. Obtain Compool Grease Gun (model GUN-3) from your Pool Equipment Supplier.
2. Ensure that the valve is in the "closed port" position.
3. Inject special Compool Silicone Grease into grease fitting at bottom of valves.
Use approximately eight squeezes on grease gun trigger after grease begins to flow.
For best results, squeeze slowly, and wait a few seconds between squeezes.
4. Wait approximately 15 minutes before attempting to rotate valve.
5. It is advisable to repeat this procedure every four months, or sooner if your pool is exposed to an extraordinarily high amount of sand or dirt.

CAUTION: Use only approved silicone grease.

Petroleum-based lubricants will damage valves.

NOTE: Replacement parts, grease gun, and silicone grease refill cartridges are available from your Pool Equipment Supplier or direct from Compool.



If your system has not been plumbed with the Compool Pro Valve, check with the manufacturer's service instructions. It may be necessary to remove the Valve Operator and disassemble the valve in order to lubricate the diverter and O-ring seals.

Compool Silicone Grease is also available in a 1 oz. tube for this application.

REPLACING THE BACK-UP BATTERY:

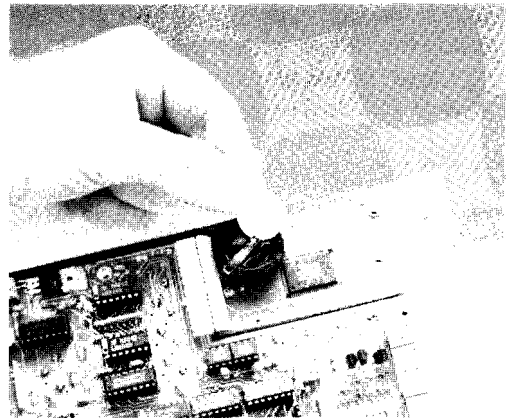
There is a small 3 volt lithium battery located on the backside of the CP-1000 Controller.

In the absence of power, this battery will keep the clock running and retain the programming in memory for approximately 48 hours. While power is connected to the system, the battery will not be drained. However, it is not rechargeable.

To replace the battery:

1. Remove four mounting screws from CP-1000 Controller (2 at each side).
2. Carefully fold Controller out, still connected to cable.
3. Pry-out old battery from battery clip, and replace it with a new one.
Pay special attention to the polarity (+ sign).

Replacement battery is available from Compool, or can be purchased at Radio Shack or your local drug store. (Type CR2032, or equivalent).



TROUBLE-SHOOTING

Your control system is designed to provide years of trouble-free enjoyment.

However, if at any time your system appears to malfunction, consult the following Check List, which should help to alleviate any problems created by operator error.

If you are still unable to solve your particular symptom, refer the situation to a qualified Pool Service Company.

NOTHING OPERATES:

1. Check all circuit breakers at the electrical supply panel.
2. At the LX-1000, check that **SYSTEM POWER Light** is ON.
3. Check 3 amp circuit breaker, which is located above faceplate in LX-1000 Power Center.
Tripped circuit breaker is indicated by a white tab. Push to reset.
4. If circuit breaker continues to trip, refer to a qualified Service Company.
5. At the LX-1000, turn **REMOTE CONTROLS Switch** to "OFF" position.
If the equipment can now be operated, there may be a malfunction at the Spa-side Remote Control.

FILTER PUMP DOES NOT OPERATE:

1. At the CP-1000, push **FILTER Equipment Button**, and check that **Status Light** is ON.
2. At the LX-1000, turn **FILTER Equipment Service Switch** to "ON" position.
3. If filter pump operates, there is a possible malfunction at the CP-1000.
4. If filter pump does not operate, pump may require servicing.

AUX 1 DOES NOT OPERATE:

1. At the CP-1000, push **AUX 1 Equipment Button**, and check that **Status Light** is ON.
If AUX 1 activates a pool cleaner, there will be a 4 minute delay.
2. At the LX-1000, turn **AUX 1 Equipment Service Switch** to "ON" position.
3. If equipment operates, there is a possible malfunction at the CP-1000.
4. If equipment does not operate, the equipment may require servicing.
5. If AUX 1 activates a pool cleaner valve, check that cable has not been unplugged from Valve Operator.

HEATER DOES NOT OPERATE:

1. At the CP-1000, make sure that **HEAT SOURCE Switch** is in either "HEATER" or "S.PREF" position, and that **THERMOSTAT Dial** is set correctly.
2. Check **Temperature Display**. Three dashes, or an unreasonably high temperature indicates that there is a malfunction at the Water Sensor.
3. Check that filter pump is running.
4. Check the filter pressure. If filter is clogged, the heater may not be getting sufficient water flow.
5. Inside the heater, check pilot light and heater controls. Heater must be turned on, and its own thermostat must be turned all the way up.
6. Heater may require servicing.

SOLAR DOES NOT OPERATE:

Note: Ambient air temperature must be approximately 5 degrees warmer than the water temperature before solar system is activated.

1. Check that filter pump is running.
2. At the CP-1000, make sure that **HEAT SOURCE Switch** is in either "SOLAR" or "S.PREF" position, and that **THERMOSTAT Dial** is set correctly.
3. Check that cable has not been unplugged from Solar Valve Operator.
4. At the LX-1000, turn **SOLAR CONTROL Switch** to "ON" position, and check to see if solar valve rotates.
Remember to return switch to "AUTO" position at completion of test.

SPA DOES NOT HEAT UP TO 104° F:

1. Inside the heater, check that thermostat is turned all the way up.
2. High limit control on heater may need adjusting. Refer to a qualified Service Company.
3. At the CP-1000, if **HEATER ON Light** turns OFF before spa attains the maximum temperature of 104° , the Controller may need a calibration adjustment. Refer to a qualified Service Company.